

## **Biological Evaluation**

### **Bird Track Springs Fish Habitat Enhancement Project**

Laura Navarrete, La Grande District Wildlife Biologist  
December, 2016

## **Table of Contents**

WILDLIFE BIOLOGICAL EVALUATION	3
Columbia Spotted Frog	7
Bald Eagle	9
Lewis' Woodpecker	10
Canada Lynx	11
Gray Wolf	12
California Wolverine	13
Fringed Myotis	15
Johnson's Hairstreak	16
Western Bumblebee	18
REFERENCES	19

## **WILDLIFE BIOLOGICAL EVALUATION**

### **Introduction**

An endangered species is an animal or plant species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range. A threatened species is an animal or plant species listed under the Endangered Species Act that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. A sensitive species is an animal or plant species identified by the Forest Service Regional Forester for which species viability is a concern either a) because of significant current or predicted downward trend in population numbers or density, or b) because of significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. The R6 Sensitive Species list pertinent to this project is dated August, 2015. Threatened, endangered, and sensitive species effects are summarized in this report by TES status and species.

As part of the National Environmental Policy Act (NEPA) decision-making process, biological evaluations (BE) are required to determine how proposed FS management activities may affect Proposed, Endangered, Threatened, or Sensitive (PETS) species or their habitats (U.S. Forest Service Manual [FSM] 2670). This evaluation presents existing information on PETS species and their habitat in the project area, and describes the anticipated direct, indirect, and cumulative effects resulting from the proposed project. The review is conducted to ensure that FS actions do not contribute to the loss of species viability or cause a species to move toward federal listing (43 U.S.C. 1707 et seq). Threatened and Endangered species are managed under authority of the Federal Endangered Species Act (ESA) (36 U.S.C. 1531-1544) and the National Forest Management Act (NFMA) (16 U.S.C. 1600-1614). The ESA requires Federal agencies make certain all actions they authorize, fund, or carry out will not likely jeopardize the continued existence of any threatened or endangered species. Sensitive species are those recognized by the Region 6 Regional Forester as needing special management to meet NFMA obligations. FS policy requires a BE to determine possible effects to sensitive species from proposed management activities.

### **Project Overview**

The La Grande Ranger District has recently initiated a cooperative agreement with the Bonneville Power Administration, Bureau of Reclamation, and the Confederated Tribes of the Umatilla Indian Reservation to design, analyze and plan fish habitat restoration activities associated with the Bird Track Springs Fish Habitat Enhancement Project. The analysis area is approximately 10 air miles west of La Grande, Oregon along approximately 1.9 miles of the Grande Ronde River along State Highway 244. The area consists of 1.2 miles of river on National Forest system lands, 0.1 miles along state lands, and 0.6 miles on privately owned lands along the reach beginning from just upstream of Bird Track Springs Campground downstream to Bear Creek Ranch. The project area is entirely within the Coleman Ridge-Grande Ronde River sub-watershed within the Grande Ronde River-Beaver Creek watershed. The general legal description is Township 3 south, Range 36 east, sections 15 and 16.

To address limited habitat conditions for native fish within the project area, the proposed action would re-establish natural river-floodplain connections and processes. Natural processes within this reach of the Grande Ronde River (GRR) include multiple channel networks usually created through forcing mechanisms of large wood, ice, beaver, and rock.

Channel reconstruction would include both instream work (wood placement and fill) and extensive channel construction activities (refer to the attached map for detailed activities and locations). New channel construction would be focused on relocating all or a portion of the river channel to the south floodplain to allow it to re-engage with several historic channel swales and desired pond features. Large wood features would be added throughout the project. Additionally, selective removal of floodplain fill to include the historic Mt. Emily Railroad grade is proposed. Additional side channels and alcove features would be

enhanced at historic channel meander scars and depressions throughout the floodplain area that may require additional some additional excavation to meet grade.

Large wood features would be constructed from locally sourced logs from National Forest and private lands. Wood structures are a combination of root wads, cut log boles, and slash material. Large wood structures would be embedded in the bed and banks of the channel and floodplain to provide stability and to resist ice forces. Logs would be trucked to the project site and stored in pre-established staging areas and then transported to their project locations by off-road dump truck or helicopter depending on site conditions and environmental concerns. Excavators would be used for large wood construction

### Pre-field Review

The list of federally-listed species applicable to the planning area was obtained from the U.S. Fish and Wildlife Service (USDI Fish and Wildlife Service 2011). The USFS Region 6 Regional Forester's Sensitive Species List, dated August, 2015 (USDA Forest Service 2016) was reviewed for sensitive species potentially applicable to the Bird Track Springs Project.

The project area was evaluated for PETS species to determine which species might occur in or near it, based on scientific literature, habitat availability, and La Grande Ranger District (RD) records of each species. No population surveys were conducted for any of the species addressed in this BE. Only those PETS known or suspected to occur, on the La Grande Ranger District, are addressed in this BE (Table 4). Sensitive species lacking potential distribution or suitable habitats within the analysis area are not addressed further in the analysis, and all alternatives would have **No Impact** on these species and/or habitats.

**Table 4. PETS Species Review, WWNF and Bird Track Springs Project Area**

Common Name	Scientific Name	USFWS Status	USFS Status	WWNF Occurrence <sup>1</sup> / Bird Track Occurrence <sup>2</sup>	Addressed Further in this BE
<b>Amphibians</b>					
Rocky mountain tailed frog	<i>Ascaphus montanus</i>		SEN	D/N	
Tailed frogs are strongly adapted to cold water conditions. They occur in very cold, fast-flowing streams that contain large cobble or boulder substrates, little silt, often darkly shaded, and less than 20°C (Bull and Carter 1996). Tailed frogs are not known to occur in the project area and streams located in the area do not provide suitable habitat.					
Columbia spotted frog	<i>Rana leuvenensis</i>		SEN	D/D	x
This species is found at aquatic sites in a variety of vegetation types, from grasslands to forests (Csuti et al. 1997). Spotted frogs have not been documented in the project area but they occur in close proximity to the project area and suitable habitat exists within the project area.					
<b>BIRDS</b>					
UPLAND SANDPIPER	<i>Bartramia longicauda</i>		SEN	D/N	
Suitable habitats in Oregon consist of large montane meadows ranging from 1,000 to 30,000 acres, generally surrounded by lodgepole pine (Marshall et al. 2003). The project area lacks suitable habitat, and no known sightings are reported for the area.					
BUFFLEHEAD	<i>Bucephala Albeola</i>		SEN	S/N	
Known breeding range in Oregon is restricted to the Cascades. Breeding habitat consists of high-elevation lake or pond habitat surrounded by forest (ODFW 2006). The project area lacks suitable habitat, and no known sightings are reported for the area.					
GREATER SAGE-GROUSE	<i>Centrocercus Urophasianus</i>	CANDIDATE	SEN	S/N	
Suitable habitats are associated with sagebrush. The project area lacks suitable habitat and known sightings for sage-grouse.					

Common Name	Scientific Name	USFWS Status	USFS Status	WWNF Occurrence <sup>1</sup> / Bird Track Occurrence <sup>2</sup>	Addressed Further in this BE
AMERICAN PEREGRINE FALCON	<i>Falco Peregrinus Anatum</i>		SEN	D/N	
Suitable nesting habitat consists of cliffs, usually within 900 meters of water (Pagel 1995). No nest sites or suitable nesting habitats are known within the project area.					
BALD EAGLE	<i>Haliaeetus Leucocephalus</i>	DELISTED	SEN	D/D	X
Nesting habitat consists of large conifers within 1 km of water containing adequate supply of medium to large fish (Johnsgard 1990). 1 known nest site exist within the project area. Nearest nest sites are located more than 10 miles from the project area. The project area contains potential foraging habitat and the potential for species occurrence.					
LEWIS' WOODPECKER	<i>Melanerpes Lewis</i>		SEN	D/H	X
Primary breeding habitats include open ponderosa pine, riparian cottonwood, and logged or burned pine (Tobalske 1997). No sightings are reported within the project area; however, sightings are reported for forested lands directly adjacent to the west. The project area contains potential suitable habitat and the potential for species occurrence.					
WHITE-HEADED WOODPECKER	<i>Picoides Albolarvatus</i>		SEN	D/N	
Nesting habitat consists of open-canopy stands with mature and overmature ponderosa pine (Buchanon et al. 2003). Impacted areas do not contain suitable habitat for white-headed woodpeckers. .					
COLUMBIAN SHARP-TAILED GROUSE	<i>Tympanuchus Phasianellus Columbianus</i>		SEN	D/N	
Potential habitats consist of bunchgrass prairies interspersed with stream bottoms containing deciduous shrubs and trees. The species was extirpated from Oregon, but has been reintroduced into northern Wallowa County (ODFW 2010). No sightings or potential suitable habitat occur within or adjacent to the project area. Occurrence within the project area is unlikely.					

Common Name	Scientific Name	USFWS Status	USFS Status	WWNF Occurrence <sup>1</sup> / Bird Track Occurrence <sup>2</sup>	Addressed Further in this BE
<b>MAMMALS</b>					
CANADA LYNX	<i>Lynx Canadensis</i>	THREATENED		D/N	X
The species is classified as “not present” on the WWNF					
GRAY WOLF	<i>Canis Lupus</i>	DELISTED	SEN	D/H	X
Gray wolves are habitat generalists inhabiting a variety of plant communities, typically containing a mix of forested and open areas with a variety of topographic features. No denning sites are known in the vicinity of the project area but the potential for wolves to move through the project area exist.					
FISHER	<i>Martes Pennanti</i>		SEN	S/H	
Preferred habitat consists of late-successional conifer forests. No sightings have been reported for northeastern Oregon since 1976, leaving no evidence for an extant population in the Wallowa Mountains (Aubrey and Lewis 2003).					
CALIFORNIA WOLVERINE	<i>Gulo Gulo Luteus</i>	CANDIDATE	SEN	D/H	X
Preferred habitat consists of alpine and subalpine areas with little or no human presence. Project area does not contain suitable denning habitat but the potential for a wolverine to move through the project area exists.					
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>		SEN	S/N	
This bat roosts in buildings, caves, mines, and bridges and the presence of suitable roost sites is more important than the vegetation type in determining the distribution of this bat. There are no known roost sites for Townsends within the Bird Track project area.					
Spotted Bat	<i>Euderma maculatum</i>		SEN	S/N	
Spotted bats primarily rely on crevices and caves in tall cliffs for roosting which likely determine their distribution. The Bird Track project area lacks tall cliffs, making occupancy unlikely.					
Fringed myotis	<i>Myotis thysanodes</i>		SEN	D/H	
This bat is found throughout much of western North America and has been documented on the Wallowa-Whitman. Roosting in decadent trees and snags is common throughout it's range. Harvest activities to obtain large wood for instream work takes place on private land that lacks decadent trees and snags.					
<b>MOLLUSKS</b>					
FIR PINWHEEL	<i>Radiodiscus Albietum</i>		SEN	D/N	
Most often found in moist and rocky Douglas-fir forest at mid-elevations in valleys and ravines (Frest and Johannes 1995). Known distribution in Oregon is limited to extreme NE (above Weston, Umatilla Co.; Duncan 2008). No sightings are reported within or adjacent to the project area. Lack of moist forest makes occurrence unlikely.					
Columbia gorge oregonian	<i>Cryptomastix hendersoni</i>		SEN	S/N	
Land snail found in rather open and dry large-scale basalt taluses, generally at lower elevations. Most colonies occur at slope bases along the major river corridors, not in major tributaries. Associated vegetation includes <i>Celtus</i> , <i>Artemisia</i> , <i>Prunus</i> , <i>Balsamorhiza</i> , and <i>Seligeria</i> . Surrounding vegetation is generally sage scrub. Generally in steep north or east-facing taluses, often only at the base. Occasionally found in meta sedimentary taluses as well (Frest and Johannes 1995). Lack of basalt talus and sage scrub makes the occurrence of this species unlikely.					
Shiny tightcoil	<i>Pristiloma wascoense</i>		SEN	S/N	
Most sites for this species are in ponderosa pine and douglas fir forests at moderate to high elevations. Quaking aspen also provides habitat. Other <i>Pristiloma</i> species in the ecoregion are known to prefer moist microsites such as basalt talus accumulations, usually with riparian influence. There has been no documentation on the Wallowa-Whitman but potential habitat is present. There is a lack of microsites within the project area and occurrence is unlikely.					
<b>INSECTS</b>					
MEADOW FRITILLARY	<i>Boloria Bellona</i>		SEN	S/N	
The only known site in Oregon is located in Umatilla County (Fleckenstein 2006). The project area is located outside the known distribution of this species.					

Common Name	Scientific Name	USFWS Status	USFS Status	WWNF Occurrence <sup>1</sup> / Bird Track Occurrence <sup>2</sup>	Addressed Further in this BE
SILVER-BORDERED FRITILLARY	<i>Boloria Selene</i>		SEN	S/N	
Suitable habitat consists of bog and marshes, often willowy sites, sometimes tall wet grass (Pyle 2002). Only three sites are reported for Oregon, the closest of which is located north of the town of Halfway on private land. No larval host species are reported for the project area, and suitable habitat for this species is unlikely.					
JOHNSON'S HAIRSTREAK	<i>Callophrys Johnsoni</i>		SEN	D/S	X
Suitable habitat includes mistletoe on ponderosa pine, which is present on the private land are of the project area.					
INTERMOUNTAIN SULPHUR	<i>Colias occidentalis pseudochristina</i>		SEN	D/N	
Suitable habitat consists of sagebrush with scattered Ponderosa Pine. Lack of sagebrush within the project area makes occurrence unlikely					
YUMA SKIPPER	<i>Ochlodes yuma</i>		SEN	D/N	
This species has been documented along the Imnaha River in Wallowa Co. It is closely associated with its host plant <i>Phragmites australis</i> . Lack of the presence of the host species within the project area makes occurrence highly unlikely.					
WESTERN BUMBLEBEE	<i>Bombus occidentalis</i>		SEN	D/S	X
The western bumblebee is a habitat generalist and inhabits a wide variety of habitat types, associated with flowering plants. Recent surveys across the Wallowa-Whitman has found them to be distributed across multiple elevations and habitat types. No sightings have been documented within the project area but habitat and distribution indicates occurrence is likely.					

SEN = Sensitive.

<sup>1</sup>D = Documented occurrence, S = Suspected occurrence (USDA Forest Service 2009).

<sup>2</sup> K = Known to occur, S = Suspected to occur, H = Not known to occur, but habitat present, N = No habitat present and/or not present.

## Methodology

In general, the analysis area is the same as the project area unless stated below for each species. For cumulative effects, past activities within the project area have been incorporated into the existing condition descriptions below. Present and reasonably foreseeable future actions are described in Appendix D of the EA. Those actions which overlap in time and space with the Bird Track Springs project which would have a measurable cumulative effect on each of these species are described in the cumulative effects discussions below.

## COLUMBIA SPOTTED FROG (*Rana luteiventris*)

**Background Information** - This species is found at aquatic sites in a variety of vegetation types, from grasslands to forests (Csuti et al. 1997). It is highly aquatic and is usually near cool, permanent, quiet water. It is found in marshes, wet meadows, permanent ponds, lake edges, and slow streams with non-woody wetland vegetation, but may move considerable distances across uplands after breeding (Stebbins 1985, Corkran and Thoms 2006). Bull and Hayes (2001) recorded migration distances ranging from 15 to 560 m in northeastern Oregon. Migrations often followed shortest distance travel routes through dry, open forest, rather than along riparian corridors. Breeding occurs in shallow water at pond edges, stream margins, and inundated floodplains. Egg masses are free-floating and tadpoles live in the warmest parts of the water. Springs, ponds, and backwaters may be used as over-wintering sites for local populations of spotted frogs (Hayes et al.

1997). Larvae have a diet of algae, plant material, and other organic debris (Csuti et al. 1997). Adults eat insects, spiders, mollusks, crayfish, and slugs.

The Columbia spotted frog occurs locally in eastern Oregon (Csuti et al. 1997). A study conducted from 1997-2004 in northeastern Oregon found that the frog is widely distributed throughout northeastern Oregon where permanent ponds and rivers or creeks occur, and that although populations are generally not large, numerous small ones occur, particularly when connected by flowing water (Bull 2005).

Pearl et al. (2010) surveyed 42 sites throughout southeastern Oregon where Columbia spotted frogs were found historically. However, recent genetic analyses suggest that the southeastern Oregon populations of Columbia spotted frogs sampled in Pearl's study are actually a separate clade (Great Basin clade) and possibly a separate species from the Northern clade that is found in the Wallowas (Funk et al. 2008). In addition, genetic analyses provided strong evidence that the Northern clade is experiencing population expansion, in contrast with the Great Basin clade, which is experiencing declines.

### **Existing Condition**

Instream habitat and riparian areas have been changed from historical conditions due to many activities that have occurred over the years. The project area lacks shallow pools necessary for breeding. Spotted frogs have not been documented in the project area but they occur in multiple areas upstream along the Grande Ronde River.

### **Direct and Indirect Effects**

**Alternative 1** - Under alternative 1, the project area would continue to lack the shallow water and structure necessary for spotted frogs to occupy the habitat.

**Alternative 2** - Under this alternative large wood structures would be placed within the riverbed to create better channel control and habitat through pool creation. New channel construction would be focused on relocating all or a portion of the river channel to the south floodplain to allow it to re-engage with several historic channel swales and desired pond features. In the short term (3-5 years) construction activities would remove any potential habitat for spotted frogs and affect adult movement. In the medium to long term (5 years on), increased pooling habitat and healthy river flow would create more breeding habitat for the spotted frog and help maintain steady populations.

### **Cumulative Effects**

**Alternative 1** - There are no cumulative effects from selecting this alternative. Any changes that would occur over time as a result of selecting this alternative simply reflect the evolving baseline conditions for the area.

**Alternative 2** - Past activities that have affected spotted frog habitat include grazing, fire suppression and logging and have been incorporated into the existing conditions. Ongoing and future livestock grazing is expected to be maintained at the current level and have minimal effect on suitable habitat. There are no other projects within the subwatershed in the foreseeable future that would impact spotted frog habitat. This project would not add to cumulative effects.

### **Determination**

The Bird Track Springs project area may be inhabited by spotted frogs. In the short term, the action alternatives may impact individual frogs (**MIH**) but will not likely lead to a downward trend in the population or trend toward federal listing. In the medium to long term, the action alternative would have a Beneficial Impact (**BI**) to the spotted frog by providing more breeding habitat.

## BALD EAGLE

The bald eagle ranges throughout much of North America, nesting on both coasts and north into Alaska, and wintering as far south as Baja California. The largest breeding populations in the contiguous United States occur in the Pacific Northwest states, the Great Lakes states, Chesapeake Bay, and Florida. In Oregon, species numbers vary by season and include breeding, migration and wintering populations. The breeding season begins in late February or March, with juveniles fledging between mid-July and early September.

Nesting territories are normally associated with lakes, reservoirs, rivers, or large streams. In the Pacific Northwest recovery area the preferred nesting habitat for bald eagles is predominately uneven-aged, mature coniferous (ponderosa pine, Douglas-fir) stands or large black cottonwood trees along a riparian corridor. Eagles usually nest in mature conifers with gnarled limbs that provide ideal platforms for nests.

### Existing Conditions

There is a known bald eagle nest site that occurs on private land within the project area. A bald eagle pair has nested consistently in this site for multiple years and are expected to continue barring disturbance.

### Direct and Indirect Effects

**Alternative 1** - There would be no direct adverse effects to bald eagles from the No Action Alternative because no timber harvest, stream restoration, or transportation activities would occur.

**Alternatives 2** – Direct effects of the proposed action could include nest abandonment or nest failure due to disturbance from construction activities. Disruptive activities in or near eagle foraging areas can interfere with feeding young, reducing chances of survival and productivity. Bald eagle restrictions would be implemented for the project to avoid disturbance of the eagles. These restrictions include: 1) A no activity buffer of 600ft and, 2) Timing restrictions from Feb 15<sup>th</sup>- August 15<sup>th</sup>.

Proposed tree removal for in-stream wood features would come from 1,058 acres on private land. The majority of the large wood is anticipated to be harvested from a 300 acre area along the western edge of the private land furthest from the Grande Ronde. A history of heavy timber harvest on this land has reduced available snags, large decadent tree structure and available roosting and nesting habitat. There are no known existing bald eagle nest sites or roosting site on this land.

### Cumulative Effects

**All alternatives** - The area considered for cumulative effects is the project area, as well as the area within one mile of the project area boundary. One mile is the distance described as a threshold for disturbance of nesting bald eagles (USDA Forest Service 2009) and would encompass shorter disturbance distance for foraging eagles. All of the activities in Appendix D have been considered for their cumulative effects on bald eagles and their habitat. Ongoing and foreseeable activities considered in this cumulative effects analysis include firewood cutting, travel of open roads, summer and winter recreation, livestock grazing, and prescribed fire activities outside the project area. No measurable cumulative impacts to bald eagles are expected due to lack of negative impacts to available perching habitat.

### Determination

Long term the project activities would have no effect on the availability of bald eagle nesting or winter foraging/roosting habitat. project activities may temporarily displace individuals, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species (**MIH**).

## LEWIS' WOODPECKER

Lewis' woodpecker breeds from southern British Columbia, southwestern Alberta, Montana, and parts of South Dakota and Nebraska, south to central California, and portions of Colorado, Arizona, and New Mexico. The species winters in milder portions of this range from northern Oregon to northern Mexico and west-Texas. In Oregon, the species was formerly widespread. It is known to breed in the eastern Cascades, and in low numbers along river and stream valleys in central and eastern Oregon (Marshall et al. 2003).

The species' five major habitat types include ponderosa pine, oak-pine woodlands, cottonwood riparian forests, and areas burned by fire. Special needs consist of aerial insect populations for foraging, large soft or well-decayed snags for nesting, and relatively open canopy for flycatching (ODFW 2006). Thomas (1979) identified the minimum snag diameter suitable for Lewis' woodpecker as 12 inches, while Saab and Vierling (2001) reported average snag size used by the species in conifer stands as about 18 inches DBH (diameter base height). According to Sousa (1983), habitat suitability is moderate or greater when canopy closure is less than 50% and optimal when canopy is less than 30%. Other components of suitable habitat include at least one snag per acre greater than 12 inches DBH and an available shrub layer (Sousa 1983).

The potential importance of post-fire habitats has also been identified. Saab and Vierling (2001) state that large-scale burned areas may play a critical role in providing ephemeral source habitats for this species. Block and Brennan (1987) reported the species more frequently occurring in burned versus non-burned habitats and burned areas supported the only observed nest sites on the Modoc Plateau as did Raphael and White (1984) for their study located in the Sierra Nevada.

### Existing Condition

Suitable habitat currently exists within forested habitat within 1 mile directly north of the project area. A previous stand replacing fire adjacent to pockets of Old Forest Single Story ponderosa pine provides nesting habitat. Known nests occur within this area. Potential habitat is present within ponderosa pine associations to the north and south of the project area on Forest Service land.

### Direct and Indirect Effects

**Alternative 1** - There would be no direct adverse effects to Lewis' woodpecker from the No Action Alternative because no timber harvest, **stream restoration**, or transportation activities would occur.

**Alternative 2**— Project activities would affect several large cottonwood trees within the riparian area along the Grande Ronde River through direct removal. The project is designed to avoid the majority of existing cottonwood habitat. Cottonwood cuttings along with other riparian hardwoods would be planted after construction activities are completed and ideally would contribute to a functional riparian community. There are no known Lewis' woodpecker nests where project activities are proposed but there is the potential for disturbance to nesting birds and a reduction in habitat in the short term (5-10 years). Large wood removal on adjacent private land would occur within habitat unsuitable for Lewis' woodpeckers and would not have an impact.

### Cumulative Effects

**All alternatives** - Lewis' woodpeckers have relatively small home ranges (15 acres, Thomas 1979). Therefore, the cumulative effects area is defined as the project area. All of the activities in Appendix D of the EA have been considered for their cumulative effects on Lewis' woodpeckers and their habitat. Past activities such as removal of larger ponderosa pine and fire suppression have combined to create conditions that are largely marginal or unsuitable for this species, where historically habitat was more readily available. Firewood cutting could cause additional loss of snags along roads. Livestock grazing would continue at

existing levels. No activities within the foreseeable future are expected to impact Lewis' woodpecker habitat. Project activities would not contribute to cumulative effects.

### Determination

The proposed action has the potential to disturb nesting woodpeckers and marginally reduce habitat in the short term (5-10 years). Project design features would preserve the majority of available riparian habitat and post-treatment planting would increase the quality and quantity of habitat. Based on these factors, in the short term, the action alternatives may impact individual woodpeckers (**MIH**) but will not likely lead to a downward trend in the population or trend toward federal listing. In the medium to long term, the action alternative would have a Beneficial Impact (**BI**) to the Lewis' woodpecker by providing more riparian habitat.

### CANADA LYNX

Lynx occur in mesic coniferous forests that have cold, snowy winters and provide a prey base of snowshoe hare, their primary prey (Ruediger et al. 2000). Snow conditions and vegetation types are important factors in defining lynx habitat. Crusting or compaction of snow may reduce the competitive advantage that lynx have in deep, soft snow. The primary vegetation that contributes to lynx habitat is subalpine fir where lodgepole pine is a major seral species, generally between 4,000-6,500 feet elevation. Cool, moist Douglas-fir, grand fir, western larch, and aspen forests may also contribute to lynx habitat when interspersed with subalpine forests. Dry forest types (e.g., ponderosa pine, climax lodgepole pine) are not considered habitat.

Snowshoe hares comprise 33-100% of the diet of lynx throughout their range and a hare density  $\geq 0.5$  hares/ha is likely required for lynx persistence (Ruggiero et al. 2000). Hares exploit early to mid-successional stages and lynx foraging habitat is mixed conifer stands characterized by a dense, multi-layered understory that maximizes hare browse at both ground level and at varying snow depths. Lodgepole pine is often a major component of this habitat. Dense thickets of young conifers interspersed with small patches of grasses, forbs, and ferns seem to be prime habitat for snowshoe hares in Oregon (Verts and Carraway 1998). Riparian areas, aspen stands, and high-elevation willow communities are important lynx prey habitats. Lynx prefer to move through continuous forest and frequently use ridges, saddles, and riparian areas.

Lynx select dense patches of downed trees for denning (Johnson and O'Neil 2001). Large, coarse woody debris is a common element of natal den sites. Hollow logs and root wads provide protection and thermal cover for kittens. Denning habitat must be in or adjacent to foraging habitat to be functional (Ruediger et al. 2000). Jack-strawed piles of logs form a habitat matrix offering thermal cover, hiding cover, and hunting areas (Johnson and O'Neil 2001).

### Existing Condition

The Blue Mountains represent the southern extent of lynx distribution, which would explain the rarity of this species on the periphery of its range both historically and presently. The presence of lynx in Oregon in the late 1800s and early 1900s is documented by 9 museum specimens collected from 1897 to 1927 (McKelvey et al. 2000). Records after that are rare. Only 4 recent specimens are known, one from Wallowa County in 1964, one from Benton County in 1974, and one from Harney County in 1993 (McKelvey et al. 2000). Based on limited verified records, lack of evidence of reproduction, and occurrences in atypical habitat that correspond with cyclic highs, lynx are thought to occur in Oregon as dispersers that have never maintained resident populations. They are considered an infrequent and casual visitor by the state of Oregon (Ruediger et al. 2000).

The Forest conducted extensive winter track surveys for wolverine and lynx from 1991 to 1994, and no lynx tracks were found (Wolverine and Lynx Winter Snow Track Reports, 1991-92, 1992-93, 1993-94). Hair

snare traps were used to survey for lynx, according to the National Lynx Survey, on the Forest during the summers of 1999-2001 and no lynx were detected.

Lynx habitat in northeastern Oregon is categorized as a “peripheral area”, meaning there is no evidence of long-term presence or reproduction that might indicate colonization or sustained use by lynx, but that it may enable the successful dispersal of lynx between populations or subpopulations. The Forest is considered “unoccupied” habitat because there has not been a verified lynx observation since 1999. “Occupied” habitat is defined as requiring at least 2 verified observations or records since 1999 on the Forest or evidence of lynx reproduction on the Forest.

### **Direct, Indirect, and Cumulative Effects**

**Alternative 1** - The No Action alternative would have no direct, indirect, or cumulative effects on lynx or lynx habitat because no timber harvest, **stream restoration**, or transportation activities would occur.

### **Determination**

There would be **No Effect (NE)** to the Canada lynx from any of the alternatives for this proposed project because this species is not considered present on the Forest (Wallowa-Whitman National Forest Lynx Strategy Letter April 19, 2007).

## **GRAY WOLF**

Gray wolves are habitat generalists inhabiting a variety of plant communities, typically containing a mix of forested and open areas with a variety of topographic features. Historically, they occupied a broad spectrum of habitats including grasslands, sagebrush steppe, and coniferous, mixed, and alpine forests. They have extensive home ranges and prefer areas with few roads, generally avoiding areas with an open road density  $>1.0 \text{ mi/mi}^2$  (Witmer et al. 1998). Dens are usually located on moderately steep slopes with southerly aspects within close proximity to surface water. Rendezvous sites, used for resting and gathering, are complexes of meadows adjacent to timber and near water (Kaminski and Hansen 1984). Both dens and rendezvous sites are often characterized by having nearby forested cover remote from human disturbance. Wolves are strongly territorial, defending an area of 75-150  $\text{mi}^2$ , and home range size and location is determined primarily by abundance of prey. Wolves feed largely on ungulates and beavers, but will consume small mammals and fish to a lesser extent (Verts and Carraway 1998). Wolves are generally limited by prey availability and threatened by human disturbance. Generally, land management activities are compatible with wolf protection and recovery, especially actions that manage for viable ungulate populations.

### **Existing Condition**

The WWNF occurs within the historic range of the gray wolf and approximately 8 breeding packs have been identified to inhabit the forest, though no breeding packs have been confirmed within the Grande Ronde River- Beaver Creek watershed where project activities would occur. Habitat and disturbance effects are of concern near denning and rendezvous areas, but no such features have been identified in or adjacent to the project area. Potential habitat and adequate prey occurs throughout the watershed, and movement through the project area is unlikely, due to the presence of the highway, but possible.

## Direct and Indirect Effects

**Alternative 1** - There would be no direct, indirect, or cumulative impacts to wolves under the no-action alternative because no timber harvest, stream restoration, or transportation activities would occur.

**Alternative 2** - The primary threats to wolves are human disturbance, mortality from shooting and vehicle collisions (Wisdom et al. 2000). Primary concerns for the Forest Service are 1) disturbance to denning or rendezvous sites, and 2) providing adequate habitat for populations of prey species such as elk (USDA Forest Service 2009).

None of the project activities would affect wolves or their habitat because there is an abundance of prey and prey is not a limiting factor. No known den or rendezvous sites are located within the Bird Track Springs project area. Treatments are not expected to impact big game prey availability (see Rocky Mountain Elk discussion).

## Cumulative Effects

**All alternatives** - Because the home range of a colonizing wolf population can average 301<sup>2</sup> miles (Bangs and Fritts 1993) with dispersal movements up to 522 miles (Boyd and Pletscher 1999), the Grande Ronde River- Beaver Creek watershed defines the cumulative effects analysis area. The only activity with potential cumulative impacts to wolves would be the implementation of the Forest Travel Management Plan (TMP). Management of motor vehicle use within the analysis area could have a positive effect on the distribution of elk, a primary prey resource for wolves. The TMP could reduce the density of designated motorized routes within the watershed as well as manage cross-country motor vehicle travel. Reduced road densities distribute elk across seasonal ranges during the proper season and may reduce the likelihood of wolves coming into contact with livestock on private lands. Ongoing livestock grazing on WWNF lands presents the potential for wolf-livestock interaction on these lands. However, potential wolf-livestock interaction is not cumulative to activities proposed under this project, because project activities are not expected to affect wolves.

## Determination

**Common to All Alternatives:** There would be **No Impact (NI)** to the gray wolf from any of the alternatives from this project due to a lack of effects resulting from management activities.

## CALIFORNIA WOLVERINE

Wolverines in the southern portion of their range utilize high-elevation alpine portions of Washington, Idaho, Montana, Wyoming, and Colorado. They do not appear to need specific vegetation or geologic habitat features, but instead select for areas that are cold and receive enough winter precipitation to reliably maintain deep persistent snow into the warm season. Mean seasonal elevations used by wolverines in the Northern Rocky Mountains and North Cascades vary between around 4,600 and 8,500 ft. depending on location, but are always relatively high on mountain slopes. In the contiguous United States, valley bottom habitat appears to be used only for dispersal movements and not for foraging or reproduction (Federal Registrar 2013).

Wolverines are not thought to be dependent on vegetation or habitat features that may be manipulated by land management activities. They have been documented using both recently logged areas and burned areas. It is unlikely that wolverine avoid the type of low-use roads that generally occur in wolverine habitat (Federal Register 2013). The best scientific information available does not substantiate dispersed recreational activities (even at high levels) as a threat to the wolverine population (Federal Register 2014). While there are no definitive effects currently known at the population level, there are on-going scientific investigations to better understand potential recreational impacts to wolverine.

Deep, persistent, and reliable spring snow cover (April 15 to May 14) is the best overall predictor of wolverine occurrence in the contiguous United States. Wolverine year-round habitat use takes place almost entirely within the area defined by deep, persistent spring snow. This is likely related to the wolverine's need for deep snow during the denning period. No records exist of wolverines denning anywhere but in snow, despite the wide availability of snow-free denning opportunities within the species range. The deep, persistent spring snow layer in the Copeland *et al.* (2010) model captures all known wolverine dens in the DPS (Federal Registrar 78). However, it should be noted that this model depicts areas that are snow covered through May 15 in at least 1 out of 7 years. Additionally, except for denning females (denning habitat is not considered scarce or limiting to wolverine reproduction), wolverines are occasionally observed in areas outside the modeled deep, persistent snow zone, and factors beyond snow cover may play a role in overall wolverine distribution (Federal Registrar 19).

On February 4, 2013, the U.S. Fish and Wildlife Service proposed to list the distinct population segment of the North American wolverine occurring in the contiguous United States, as a threatened species under the Endangered Species Act. On August 13, 2014, the USFWS withdrew its proposal to list the wolverine under the Endangered Species Act. As a result of this action, the wolverine automatically returned to the R6 Sensitive Species list. On April 4<sup>th</sup>, 2016 the district court of Missoula, Montana overturned the USFWS decision to withdraw its proposal. The wolverine is now considered a candidate species again.

### Existing Condition

Adjacent wilderness areas including the Eagle Cap and North Fork John Day Wilderness are the nearest potential natal denning sites. There are no known den sites on the Forest (USDA Forest Service 2009). The Forest conducted extensive winter track surveys for wolverine and lynx from 1991 to 1994, and no wolverine tracks were found. (Wolverine and Lynx Winter Snow Track Reports, 1991-92, 1992-93, 1993-94). Surveys conducted on the WWNF during the winter of 2010/2011 detected 3 different wolverines, one of which was located in the southern Wallowa Mountains, northeast of the Bird Track Springs project area.

### Direct and Indirect Effects

**Alternative 1** - There would be no direct impacts to wolverine from the No Action Alternative because no timber harvest, stream restoration, or transportation activities would occur.

**Alternative 2** - Due to higher temperatures and increased summer human traffic, it is unlikely that wolverines would occupy the project area, but movement through the project area is possible. The lack of lingering snowpack within the project area also minimizes the potential for wolverine denning. Forays into the project area would be more likely during the winter when human presence decreases due to snow, and potential food sources such as large ungulates move to lower elevations. Timber harvest operations and construction activities, if conducted during the winter, could impact local presence and pattern of wolverine via disturbance, but impacts would be temporary.

### Cumulative Effects

**All alternatives** - Wolverines have large home ranges, estimated from studies in central Idaho to range from 26,000 to 128,000 acres (Banci 1994); corresponding to a cumulative effects area encompassing the project area and lands within a distance of 4.5 miles. Present and reasonably foreseeable future actions were analyzed for cumulative impacts to the species. Review of the FACTS database for the WWNF indicate that activities that may impact wolverine habitat within the Grande Ronde River-Beaver Creek watershed and outside the project area within the past 10 years consist of underburning, pre-commercial thinning, and commercial harvest. Because wolverines are known to avoid roaded areas, these activities occur in areas unlikely to impact the species. Roadless and wilderness areas on WWNF lands to the northeast would continue to provide suitable habitat. This project would not contribute to cumulative effects for wolverine.

## Determination

Past road construction has provided human access to portions of the project area that may have been utilized by wolverine historically. Activities proposed by the action alternatives would be undertaken primarily during the snow-free months when human presence is high and wolverine use unlikely. Winter timber harvest operations may impact presence and pattern of individual wolverine via disturbance. Project activities would not impact core habitats located in wilderness or roadless areas. Therefore, all action alternatives may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species (MIIH).

## FRINGED MYOTIS (*Myotis thysanodes*)

**Habitat Information-** The fringed myotis ranges through much of western North America. It primarily occurs from sea-level to 9348 f, but is primarily found at middle elevations (3936-6888ft). Distribution is patchy. It appears to be most common in drier woodlands (oak, ponderosa pine) but is found in a wide variety of habitats including desert scrub, mesic coniferous forest, grassland, and sage-grass steppe (OOFarrel et al. 1980). They are known to roost in crevices in buildings, underground mines, rocks, cliff faces, and bridges but roosting in decadent trees and snags, particularly large ones, is common throughout its range. The fringed myotis has been documented in a large variety of tree species and it is likely that structural characteristics (e.g. height, decay stage) rather than tree species play a greater role in selection of a snag or tree as a roost (Weller and Zabel 2001). This myotis feeds on a variety of invertebrate taxa. The two most commonly reported orders in its diet are beetles and moths, however several potentially flightless taxa such as harvestmen, spiders, and crickets have been found in its diet. The presence of non-flying taxa in its diet indicates that they may glean prey from vegetation in addition to capturing prey on the wing. The potential to glean prey in concert with its wing-loading, flight style, morphological adaptations of wing and tail membranes, and design of its echolocation call indicate that the fringed myotis is adapted for foraging within forest interiors and along forest edges. The main threats for long term persistence of the fringed myotis is the loss or modification of roosting habitat. Removal of large blocks of forest or woodland habitat may also threaten the species due to its apparent propensity for foraging in and around trees (Bradley and Ports 1998).

## Existing Condition

Records of fringed myotis occur within forest to the west of the project area within ponderosa pine forest. Private land that would be impacted by project activities has minimal suitable habitat as previous harvests targeted snags and large trees.

## EFFECTS ANALYSIS

**Alternative 1** - There would be no direct impacts to fringed myotis from the No Action Alternative because no timber harvest, stream restoration, or transportation activities would occur.

**Alternative 2**- Proposed restoration activity along the Grande Ronde River would not affect roosting or nesting habitat activity because there is no habitat available. Harvest activity on private land would occur in areas that have a history of heavy harvest and contain few snags and minimal large trees. For those reasons it is unlikely that this area is used by fringed myotis. However, harvest activities have the potential to disturb and displace fringed myotis.

## Cumulative effects

Ongoing and reasonably foreseeable activities within or near the project area include firewood cutting, grazing, noxious weed treatment, road maintenance, and recreation (snowmobile, OHV use, mountain

biking, dispersed camping, hunting). Of these activities, the ones that have the potential to impact roost trees are firewood cutting and prescribed fire. Firewood cutting occurs primarily along roads and does not target snags or trees over 21 inches dbh so it should not have a measurable effect on roost site availability. Prescribed fire outside the project area could eliminate suitable roost sites in addition to the roost sites that would be eliminated from burning and harvest within the project area. However, prescribed fire is staggered across multiple years and the area would continue to provide a mosaic of burned and unburned habitat and thus provide an abundance of roost sites for this species.

**Determination- Common to all alternatives-** The alternatives **May Impact Individuals or Habitat (MIIH)** but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

## JOHNSON'S HAIRSTREAK

The Johnson's hairstreak butterfly is on the Regional Forester's sensitive species list (<http://www.fs.fed.us/r6/sfpnw/issssp/agency-policy/>). It is known to occur from southwestern British Columbia to central California. It is documented from over 80 sites in Oregon and Washington but about a third of these records are over 40 years old or do not have specific location information (Ray Davis, pers. com.). A disjunct population occurs on the Oregon/Idaho border in Baker and Union Counties in Oregon and in Adams County in Idaho. There are one to two generations a year depending on climate. Not much is known about the population in the Blue Mountains but two generations are suspected. Pupae overwinter, adults are present as early as mid-April until early July, and eggs are laid singly directly on larval host plants.

The Johnson's hairstreak larvae feed exclusively on the aerial shoots of dwarf mistletoe plants (*Arceuthobium spp.*) (LaBonte et al., 2001). Parasitic dwarf mistletoe species are highly specialized and adapted to their host species. Most species are limited to one or two primary host trees, with infection in one or two other tree species occurring rarely (Hawksworth & Wiens, 1996). The Johnson's hairstreak is known to feed on three species of dwarf mistletoe. The Johnson's hairstreaks in the Cascades, Sierras and on the coast have been found feeding on dwarf mistletoe of mountain hemlock and digger pine (Kelson & Minno, 1983; Shields, 1965), while those found in northeastern Oregon have been found feeding on western dwarf mistletoe on ponderosa pine (*A. campylopodum* (McCorkle, personal communication)). Other dwarf mistletoes occurring in the Blue Mountains include dwarf mistletoes on lodgepole pine, western larch, and Douglas-fir, and these are possible hosts.

Dwarf mistletoes vary considerably in size and growth form/habit. Because hairstreak eggs are laid singly directly on larval food-plants, it is likely that plant size is a factor in host selection. Larger plants would enable larvae to feed to maturity without wandering from plant to plant and increasing exposure to predators. To determine any additional likely larval hosts in the Blue Mountains, the average size of dwarf mistletoe shoots are compared in 6. The confirmed hosts for these hairstreaks are some of the larger dwarf mistletoe plants in the United States. McCorkle (pers. com.) believes that Johnson's hairstreaks prefer large dwarf mistletoe clumps. The thicket hairstreak is more widespread and common and has been reared from six (6) species of dwarf mistletoe, while the Johnson's has been confirmed to feed on three species. Mean shoot height of all confirmed hosts for hairstreaks are at least 5 cm while the remaining possible hosts in the Blue Mountains are smaller than this.

Dwarf mistletoes are well-represented in many stand types in the Blue and Wallowa Mountains. Table 7 displays incidence of dwarf mistletoes by proportion of trees infected and average Dwarf Mistletoe Rating from the Current Vegetation Survey (CVS) plot record (Schmitt 2002). This indicates that around 7.5% of ponderosa pines in Northeastern Oregon are infected.

**Table 8. Dwarf mistletoe occurrence and severity in the Blue and Wallowa Mountains 2002 CVS (Continuous Vegetation Survey) plot data.**

Type of Mistletoe/Sampling		Umatilla NF	Wallowa-Whitman NF	Malheur NF
Lodgepole pine dwarf mistletoe	% Plot host trees infected	13.6%	6.6%	13.5%
	Average DMR of infected trees	1.86	2.66	2.54
Western dwarf mistletoe	% Plot host trees infected	6.0%	8.3%	8.5%
	Average DMR of infected trees	2.37	3.03	2.84
Douglas-fir dwarf mistletoe	% Plot host trees infected	13.6%	18.7%	17.1%
	Average DMR of infected trees	2.73	3.45	2.78
Western larch dwarf mistletoe	% Plot host trees infected	10.5%	27.2%	17.7%
	Average DMR of infected trees	3.0	3.53	2.39

The Blue Mountains do not host western hemlock and the forests are much drier and more open than the places Johnson's hairstreaks have been found to the west. While much of the literature indicates that this butterfly is dependent on large, old, closed-canopy old-growth (Miller & Hammond, 2007; Pyle, 2002), this is based on collections and sightings in the moist fir/hemlock forests of the Cascades and West Coast. Forests providing western dwarf mistletoe (*Arceuthobium campylopodum*) habitat in the Blue Mountains are typically open to provide sun that allows ponderosa pine to regenerate.

The widespread logging of seral ponderosa pine and larch trees has reduced their dominance on the landscape. Ponderosa pine now occurs less frequently in single species or ponderosa pine-dominated stands and now occurs more frequently in mixed species stands. In shade-tolerant species such as hemlocks and true firs dwarf mistletoes can intensify and cause severe infections. However ponderosa pine would not regenerate in dense stands, thus ponderosa pine dwarf mistletoe decreases as stands become denser and less shade tolerant.

The additional removal of widespread fire has promoted the regeneration and growth of Douglas-fir and true firs in many stands previously dominated by ponderosa pines and larch. This has increased the occurrence and severity of Douglas-fir dwarf mistletoe in the Blue Mountains. However, since it is not likely a preferred host for the Johnson's hairstreak, this trend may be reducing its habitat.

The Hessburg analysis reveals the slow decline of dwarf mistletoe-infected ponderosa pine through the loss of much of the pine overstory and the encroachment of shade-tolerant species into once pine-dominated stands. The maintenance of healthy populations of Johnson's hairstreak requires the maintenance of ponderosa pine (and possibly western larch) along with their associated dwarf mistletoes.

### Existing Condition

Mistletoe infected ponderosa pine and western larch occurs on private land intended for harvest to provide large trees for the proposed restoration activities.

### Direct and Indirect Effects

**Alternative 1** - There would be no direct impacts to Johnsons' hairstreak from the No Action Alternative because no timber harvest, stream restoration, or transportation activities would occur.

**Alternative 2** – Private land harvest activities intend to target ponderosa and larch infected with dwarf mistletoe. Approximately 300 acres have a prescribed overstory removal prescription that intends to remove all overstory larch (the majority of which is infected). Objectives on this land are to maintain stands in healthy conditions and dwarf mistletoe continue to be targeted for removal on the land. This would likely result in direct reduction of Johnsons' hairstreak individuals but would not impact the ability of the species to survive in the Blue Mountains. National Forest land would continue to provide habitat that supports a population of Johnson's hairstreak.

## Cumulative Effects

**Alternative 2** – Ongoing and reasonably foreseeable activities within or near the project area include firewood cutting, grazing, noxious weed treatment, road maintenance, and recreation (snowmobile, OHV use, mountain biking, dispersed camping, hunting). Of these activities, the ones that have the potential to impact roost trees are firewood cutting and prescribed fire. Firewood cutting occurs primarily along roads and does not target snags or trees over 21 inches dbh so it should not have a measurable effect on roost site availability. Prescribed fire outside the project area could eliminate suitable roost sites in addition to the roost sites that would be eliminated from burning and harvest within the project area. However, prescribed fire is staggered across multiple years and the area would continue to provide a mosaic of burned and unburned habitat and thus provide an abundance of roost sites for this species.

## Determination

The proposed action would decrease the number of dwarf mistletoe clumps serving as larval food sources in the short term (less than 20 years) at a small scale. However, at the multi-stand scale of use of hairstreaks, dwarf mistletoe distribution would not be affected. Over the long term the distribution of ponderosa pine and western larch dwarf mistletoe would increase as the area of host trees increases with the opening of stands to allow seral regeneration. Thus, all action alternatives may impact individuals or habitat but will not likely cause a trend toward Federal listing or a loss of viability of the population or species (**MIH**).

## WESTERN BUMBLEBEE (*Bombus occidentalis*)

Bumble bees inhabit a wide variety of natural, agricultural, urban, and rural habitats, although species richness tends to peak in flower-rich meadows of forests and subalpine zones. Relatively recent changes in land usage have compromised this habitat, putting pressure on bumblebee populations. In addition to habitat loss and fragmentation, overgrazing, climate change, pesticide use, competition with honey bees, and the introduction of nonnative pathogens are all thought to contribute to the population decline of all North American bumblebees. It is known to feed on sweet clover, rabbit brush, thistle, buckwheat and clover (Koch et al 2011).

There are a number of threats facing bumble bees which include; the spread of pests and diseases by the commercial bumble bee industry, other pests and diseases, habitat destruction or alteration (agriculture, urban development, grazing), pesticides and invasive species. The invasiveness and dominance of native grasslands by exotic plants may threaten bumble bees by directly competing with the native nectar and pollen plants that they rely on. In the absence of fire, native conifers encroach upon many meadows, which removes habitat available to bumblebees.

## Existing Condition

The Western bumble bee is rare throughout much of its range and is in decline. Historically it was found from the Pacific coast to the Colorado Rocky Mountains but has seen severe population decline west of the Sierra-Cascade Crest. In Oregon, this species has been documented on Deschutes, Fremont-Winema, Malheur, Mt. Hood, Ochoco, Rogue River-Siskiyou, Siuslaw, Umatilla, Umpqua, Willamette, and Wallow-Whitman National Forests, and BLM land in the Burns, Lakeview and Medford Districts. Given the relatively recent range contraction for this species, it is unknown what the current “Documented” status is for many of these field units, as many of the documented sites are considered historic. Surveys conducted on the La Grande district 2014-2015 found western bumblebees to be low in abundance, but present at about 50% of the surveyed sites.

## EFFECTS ANALYSIS

**Alternative 1** - There would be no direct impacts to the Western Bumblebee from the No Action Alternative because no timber harvest, stream restoration, or transportation activities would occur.

**Alternative 2**- Stream restoration activities would impact pollinator habitat by tilling and contouring onto the toe slopes of nearby hills with the excess material taken to create new stream channels. Seeding of native plants, including pollinator plants would occur as needed within the disturbed areas. Spraying of invasive species would occur for 3 years after project activities are finalized. Spraying activities would be consistent with BMP outline in the 2010 Invasive Species ROD. These activities would potentially decrease invasive plants and increase a diversity of native plants.

**Cumulative effects**- Past events that affected potential Western bumblebee habitat include grazing and fire suppression and have been incorporated into the existing conditions. Present and proposed activities within the project area with a potential to affect the Western bumblebee are continuation of the current level of livestock grazing. There would be no cumulative effects from the proposed action.

**Determination- Common to all alternatives**- The alternatives **May Impact Individuals or Habitat (MIIH)** in the short term but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

## REFERENCES

- Banci, V. 1994. Wolverine. In Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski. The scientific basis for conserving carnivores, American marten, fish, lynx, and wolverine in the western United States. USDA Forest Service, Rocky Mtn. Forest and Range Exp. Stn., Gen. Tech. Rep. RM-254, Fort Collins, CO. pp. 99-127.
- Bangs, E. E., and S. H. Fritts. 1993. Reintroduction of gray wolves to Yellowstone National Park and central Idaho. Endangered Species Tech. Bull. 18(3):1, 18-20
- Bull, E.L., and Hayes, M.P.. 2001. Post-breeding Season Movements of Columbia Spotted Frogs (*Rana luteiventris*) in Northeastern Oregon. Western North American Naturalist 61(1):119-123.
- Corkran, C. C., and C. Thoms. 2006. Amphibians of Oregon, Washington, and British Columbia. Lone Pine Publishing, Auburn, WA.
- Csuti, B., A. J. Kimerling, T. A. O'Neil, M. M. Shaughnessy, E. P. Gaines, and M. M. P. Huso. 2001. Atlas of Oregon wildlife: distribution, habitat, and natural history. Oregon State University Press, Corvallis, OR. 492p.
- Funk, C.W., Pearl, C.A., Draheim, H.M., Adams, M.J, Mullins, T.D., and Haig, S.M. 2008. Range-wide phylogeographic analysis of the spotted frog complex (*Rana luteiventris* and *R. pretiosa*) in Northwestern North America. Manuscript. U.S. Geological Survey Forest and Rangeland Ecosystem Science Center, 3200 SW Jefferson Way, Corvallis, OR 97331
- Hawksworth, F.G. and D. Wiens. 1996. Dwarf Mistletoes: Biology, Pathology, and Systematics. Agriculture Handbook 709. USDA Forest Service, Washington, DC. 410p.

- Hayes, M. P., J. D. Engler, R. D. Haycock, D. H. Kopp, W. P. Leonard, K. R. McAllister, and L. L. Todd. 1997. Status of the Oregon spotted frog (*Rana pretiosa*) across its geographic range. Oregon Chapter of the Wildlife Society, Corvallis, OR.
- Johnson, D.H., and T.A. O'Neil, Managing Directors. 2001. Wildlife-habitat relationships in Oregon and Washington. Oregon State University Press, Corvallis, OR. 736 pp.
- Kaminski, T., and J. Hansen. 1984. Wolves of central Idaho. Unpublished report. Montana Cooperative Wildlife Research Unit, Missoula, MT.
- Kelson, R.V. and M.C. Minno. 1983. Observations of hilltopping *Mitoura spinetorum* and *M. johnsoni* (Lycaenidae) in California. Journal of the Lepidopterists' Society, 37:310-311.
- Koch, Jonathan. Strange, James. Williams, Paul. 2011. Bumblebees of the Western United States. [www.pollinator.org/books](http://www.pollinator.org/books). 144p.
- LaBonte, J.R., D.W. Scott, J.D. McIver, and J.L. Hayes. 2001. Threatened, Endangered, and Sensitive Insects in Eastern Oregon and Washington Forests and Adjacent Lands. Northwest Science, 75.
- Marshall, B, M.G. Hunter, and A.L. Contreras, eds. 2003. Birds of Oregon. Oregon State University Press, Corvallis. 752p.
- Miller, J.C. and P.C. Hammond. 2007. Butterflies and Moths of Pacific Northwest Forests and Woodlands: rare, endangered and management-sensitive species. FHTET-2006-07. USDA Forest Service, Forest Health Technology Enterprise Team. 234p.
- ODFW. 2006. Oregon conservation strategy, conservation summaries for strategy species. Oregon Department of Fish and Wildlife, Salem, OR.
- Pearl, C.A., Galvan, S.K., Adams, M.J., and McCreary, B. 2010. Columbia spotted frog (*Rana luteiventris*) in southeastern Oregon: A survey of historical localities, 2009: U.S. Geological Survey Open-File Report 2010-1235, 96 p.
- Pyle, R.M. 2002. The Butterflies of Cascadia. Seattle Audubon Society, Seattle, Washington. 420p.
- Ruediger, B., J. Claar, S. Gniadek, and others. 2000. Canada lynx conservation assessment and strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-00-53, Missoula, MT. 142 p.
- Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, and J. R. Squires. 2000. The scientific basis for lynx conservation: qualified insights. Pages 443-454 in Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, and J. R. Squires, editors. 2000. Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder, CO. 480p.
- Saab, V.A. and K.T. Vierling. 2001. Reproductive success of Lewis's woodpecker in burned pine and cottonwood riparian forests. Condor 103(3):491-501.
- Shields, O. 1965. *Callophrys (Mitoura) spinetorum* and *C. (M.) johnsoni*: their known range, habits, variation, and history. Journal of Research on the Lepidoptera, 4:233-250.
- Sousa, P.J. 1983. Habitat suitability index models: Lewis' woodpecker. U.S. Dept. Interior, Fish and Wildlife Service. FWS/OBS-82/10.32. 14p.

- Stebbins, R. C. 1985. The Peterson Field Guide Series: A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company, Boston, MA. 336 p.
- Thomas, J. W., ed. 1979. Wildlife habitats in managed forests: The Blue Mountains of Oregon and Washington. Agricultural Handbook No. 553. USDA Forest Service. Washington D.C. 512p.
- USDA Forest Service. 1990. Land and Resource Management Plan, Wallowa-Whitman National Forest. USDA, Forest Service, Pacific Northwest Region (R6), Wallowa-Whitman National Forest.
- USDI Fish and Wildlife Service. 2011. Federally listed, proposed, candidate species and species of concern under the jurisdiction of the Fish and Wildlife Service which may occur within Baker County, Oregon. Last updated October 8, 2011. Accessed online October 12, 2011 at <http://www.fws.gov/oregonfwo/Species/Lists/>
- U.S. Fish and Wildlife Service. 2007. National bald eagle management guideline. U.S. Fish and Wildlife Service, National Office. Arlington, VA.
- Verts, B. J., and L. N. Carraway. 1998. Land mammals of Oregon. University of California Press, Berkeley, CA. 668p.
- Witmer, G. W., S. K. Martin, and R. D. Sayler. 1998. Forest carnivore conservation and management in the interior Columbia Basin: Issues and environmental correlates. Gen. Tech. Rep. GTR-PNW-420. USDA Forest Service, Pacific Northwest Research Station. Portland, OR. 51p.